

Neural

Sec 4

(15)

a) sigmoidal

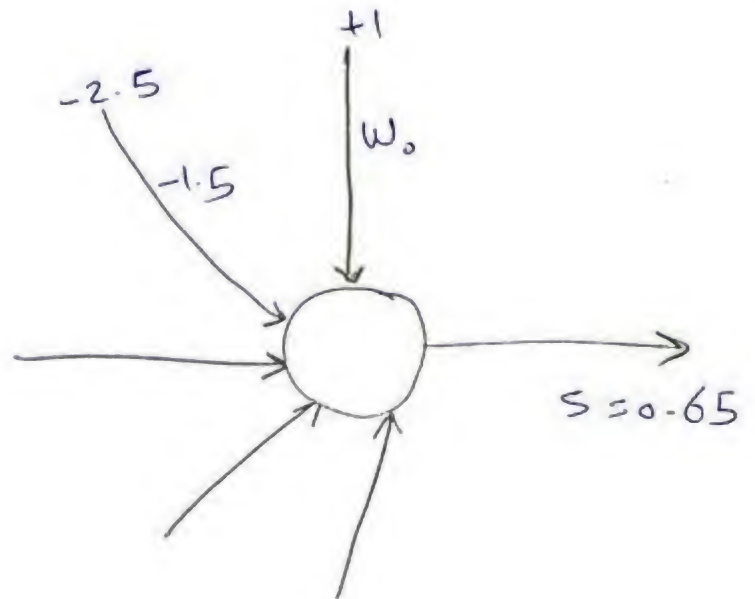
$$y = -1.11 + w_0$$

$$s = \frac{1}{1 + e^{-y}} = 0.65$$

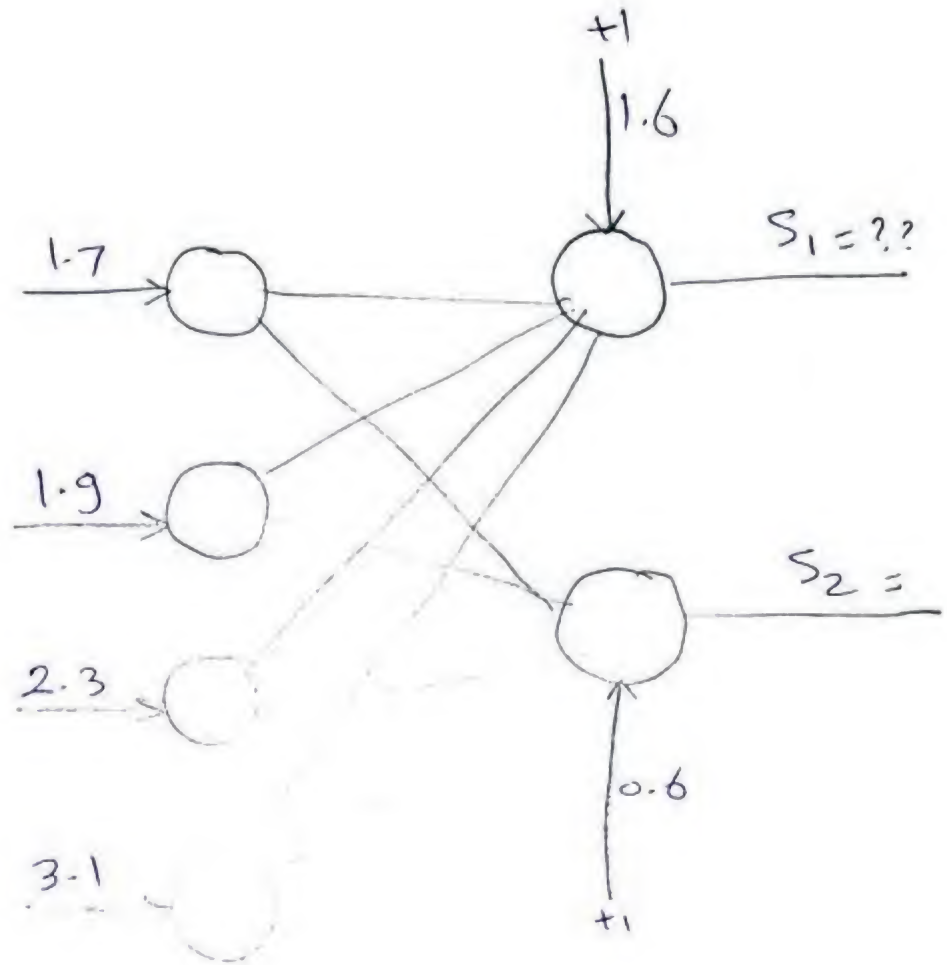
$$y = \ln \frac{s}{1-s} = 0.619$$

$$w_0 = 1.72$$

b) Bipolar



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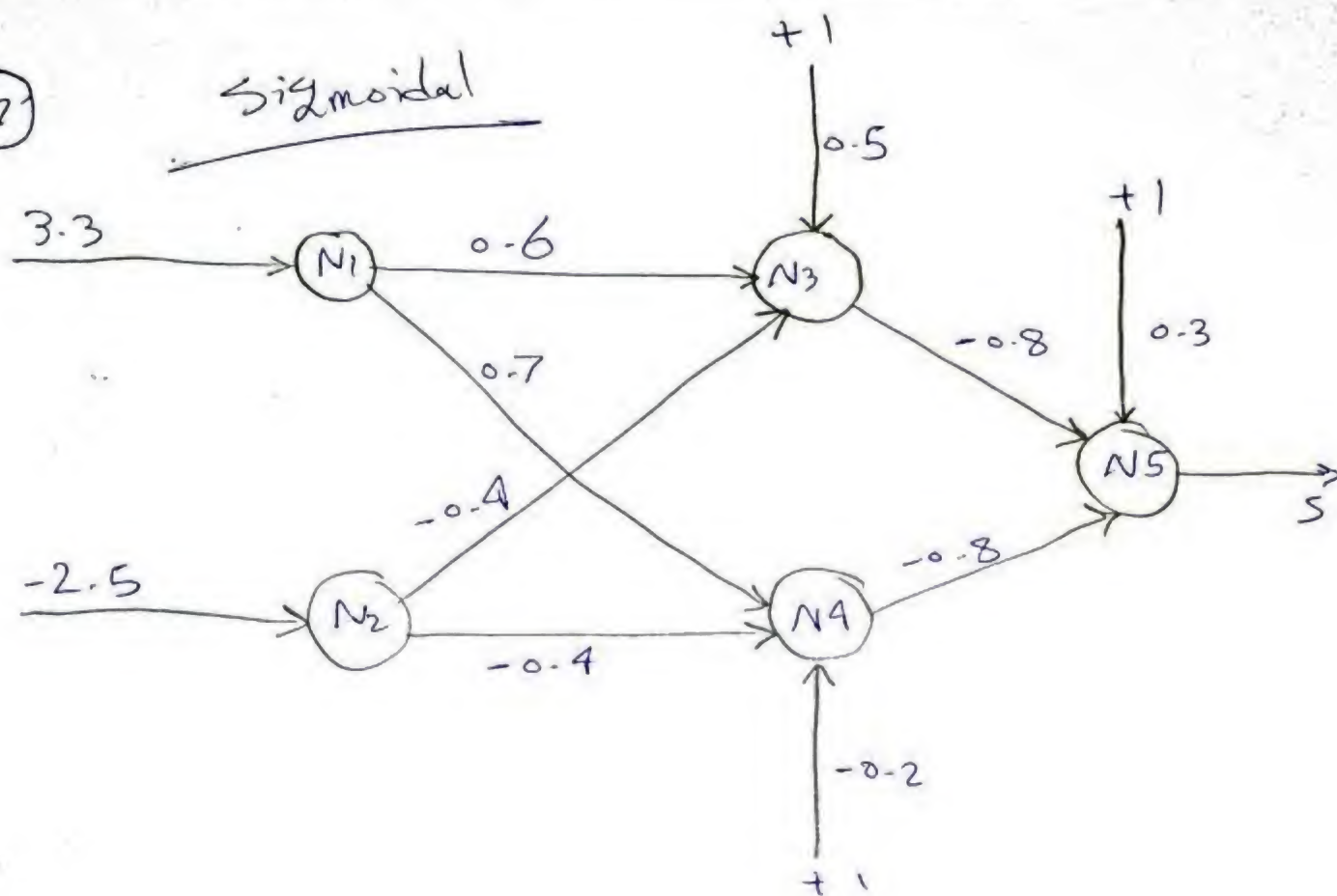


Sigmoidal

$$S_1 = 0.063$$

$$S_2 = 0.371$$

(17)

Sigmoidal

$$y_3 = 3.48 \Rightarrow P(y_3) = \frac{1}{1 + e^{-3.48}} = 0.97$$

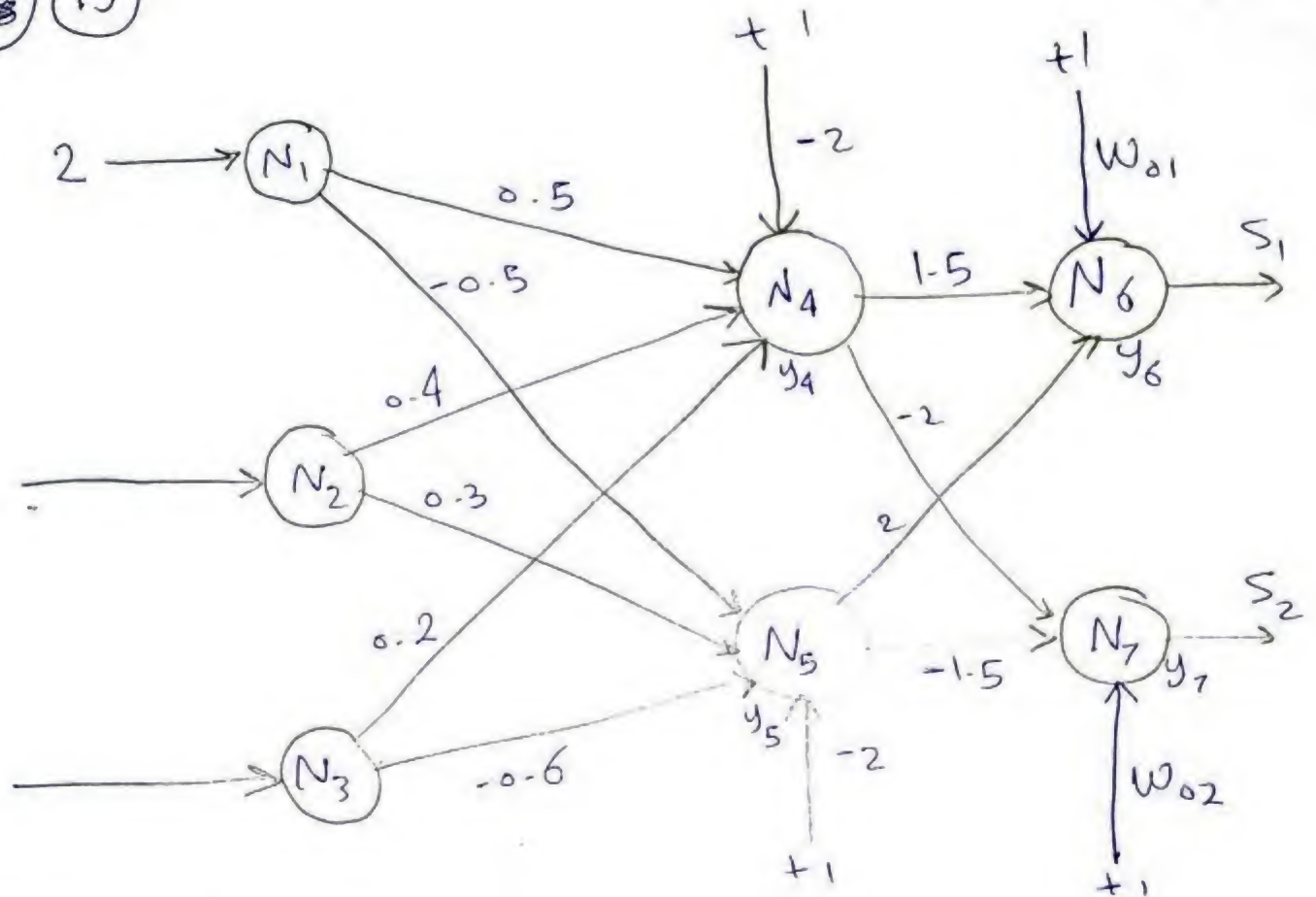
$$y_4 = 3.11 \Rightarrow P(y_4) = \frac{1}{1 + e^{-3.11}} = 0.957$$

$$y_5 = P(y_3) (-0.8) + P(y_4) (-0.8) + 0.3$$

$$y_5 = -1.242$$

$$S = \frac{1}{1 + e^{+1.242}} = 0.224$$

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Sigmoidal

Prove that $w_{02} = w_{01} + 3.5$ when $S_1 = S_2$

$$y_4 = 0 \rightarrow f(y_4) = \frac{1}{1+e^{-y_4}} = \frac{1}{2}$$

$$y_5 = 0 \rightarrow f(y_5) = \frac{1}{2}$$

$$y_6 = 0.5 \times 1.5 + 0.5 \times 2 + w_{01} = 1.75 + w_{01}$$

$$y_7 = 0.5 \times -2 + 0.5 \times -1.5 + w_{02} = -1.75 + w_{02}$$

$$S_1 = S_2$$

$$\frac{1}{1+e^{-y_6}} = \frac{1}{1+e^{-y_7}}$$

$$\left. \begin{array}{l} y_6 = y_7 \\ \therefore w_{02} = w_{01} + 3.5 \end{array} \right\} \text{ (4)}$$